

Year 5 Slippy Shoes with Melanie Windridge

Part of the Ogden Phizzi CPD Forces programme Slippy Shoes is an investigation into friction. Can you design the best footwear for climbing Everest? Your challenge is to plan a comparative test to explore how friction forces change depending on the sole of the shoe. Think about how you will observe, describe and compare the soles of the shoes that you are going to test. A Phizzi enquiry resource sheet to support your classroom activities can be found at www.ogdentrust.com/resources.

Transcript

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Phizzi Forces - Slippy Shoes Melanie Windridge - Physicist

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Friction is a force that opposes motion. It allows us to walk. When our foot touches the

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ground, friction stops it from slipping away and it allows our body to push forward - that's how

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we walk. But what if the surface we're walking on is slippery, like ice, how does that affect things?

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and what about different shoes? Now I'm here at Everest base camp - I'm in the Icefall but lower

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down the mountain I was using walking boots like these - they have a fairly grippy sole so

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on the paths they have more grip than the say my trainers would or a pair of flip-flops, but

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up here - in the ice, where it's slippery - we need to use something different. So up here I have

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these big boots - now part of the reason that they're big is that they're very insulated so

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they keep my feet warm - but look at my soles, I have really grippy soles and on top of that I

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can put these things - these are called crampons, they're just spikes that stick into the ice. So I'd

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attach these to my boots. So these spikes, they stick into the ice and that means that we have

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a much higher frictional force - much more grip - and this allows us to walk happily and safely on the ice.

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Can you design the best footwear for climbing Everest? Your challenge is to plan a

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comparative test to explore how friction forces change depending on the sole of the shoe. Think

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about how you will observe, describe and compare the soles of the shoes that you're going to test.

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Filmed on the Khumbu glacier Mount Everest